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The attached documents are exact copies of the European patent application described on the following page, as originally filed.

Les documents fixés à cette attestation sont conformes à la version initialement déposée de la demande de brevet européen spécifiée à la page suivante.

Patentanmeldung Nr.   **Patent application No.**   **Demande de brevet n°**

00127580.9

Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
p.o.

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Blatt 2 der Bescheinigung
Sheet 2 of the certificate
Page 2 de l'attestation

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Demandeur(s):

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UNITED STATES OF AMERICA

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Title of the invention:
Titre de l'invention:

Method and system for off-loading and retrieving document content in a document processing system

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DESCRIPTION

**Method and System for Off-Loading and Retrieving Document
Content in a Document Processing System**

Background of the Invention

The invention relates to data processing environments with large
document repositories and more specifically to a method and
system for off-loading a document's content from a document
processing system to a remote repository.

Known client mailing applications like Lotus™ Notes™ or
Microsoft™ Outlook™ contain continuously growing document
repositories, namely the incoming and outgoing notes or emails
often including large attachments like text documents, graphics
or even storage consuming digitized pictures. Therefore, e.g. a
Lotus Notes application uses a Lotus Domino™ database from which
a tool like IBM Content Manager CommonStore™ for Lotus Domino
(CSLD) is used to move documents stored in that database to an
archive physically located on a different device like a tape
storage. CSLD thereupon allows to access documents that have
previously been archived.

CSLD also allows to access documents that have been archived
from any archive client application (e.g. scanning applications,
CommonStore for SAP™, etc). When documents are retrieved from
the archive to a Notes database, a Lotus Notes document is
created.

When content is off-loaded from a document, it must somehow be
visualized that the content has been off-loaded. Also, it must
be possible to retrieve off-loaded content back in such a way
that the document including the restored content looks as before
the content was off-loaded.

However, to enable that content can be retrieved back, modifications must be made to the application built on top of the document processing system, e.g. in case of Lotus Notes, in a form within a template. Implementing these modifications is rather time consuming and cost extensive.

Summary of the Invention

It is therefore an object of the present invention to provide a method and system for handling off-load of content to a large document repository which enable to retrieve off-loaded content back without the requirement to modify a document processing application.

It is another object to provide such a method and system that enable user-friendly handling of off-load and retrieval of document content.

The above objects are achieved by the features of the independent claims. Advantageous embodiments are subject matter of the subclaims.

The underlying concept is to detach content from a document and to off-load the detached content to a repository. The off-loaded content is replaced by a text message that the content has been off-loaded and a labelled retrieve button. Behind the button is code to retrieve the content back from the repository.

When a previously off-loaded content has been restored, the text message and the retrieve button are removed. Since the whole code is kept behind the button, there is no need to modify the document processing application. That means, an existing application built on top of a document processing system can be enabled for off-loading with a few administrative steps.

It is understood hereby that the above mentioned remote
repository server can also be a local hard disk.

Brief Description of the Drawings

In the following, the present invention is described in more
detail by way of embodiments from which further features and
advantages of the invention become evident whereby

Fig. 1   shows the scenario for off-loading a mail attachment
            and replacing it with a button to retrieve the off-
            loaded content;

Fig. 2   shows the scenario for retrieving off-loaded content
            and restoring the original attachment; and

Fig. 3   shows a detailed data flow diagram illustrating the
            various steps for invoking a retrieve request in case
            of IBM Content Manager CommonStore for Lotus Domino
            (CSLD).

Detailed Description of the Drawings

Fig. 1 exemplary shows a Lotus Notes document 101 containing two
attachments 102, 103 (A1, A2). It is readily understood hereby
that the document 101 can be a document of any document
processing system where content of a document can be off-loaded
to free-up resources.

IBM Content Manager CommonStore for Lotus Domino (CSLD) 104
offloads the attachments 102, 103 to a repository 105. CSLD 104
detaches the attachments 102, 103 and replaces them by
placeholder texts and retrieve buttons 106, 107, respectively.
In this embodiment, the retrieve buttons 106, 107 are labelled

after the names of the original attachment in order to associate buttons with attachments. The retrieve buttons 106, 107 are part of the document body, thus do not require any customization of the processing application.

Fig. 2 exemplarily shows a Lotus Notes document (doc1) 201 after attachment off-loading. It contains placeholder text and retrieve buttons 202, 203 for two attachments. By pushing button 202, a user invokes CSLD 204 to retrieve the according content back from the repository 205. CSLD restores attachment (A1) 206 back to the Notes document (doc1) 201 thereby removing the placeholder text and the retrieve button.

It is understood hereby that the above scenarios are only exemplary and not limited to attachment off-loading. Alternatively, whole documents or any part of a document can be off-loaded as well, using the invention. The aforedescribed retrieve button is also only exemplary and can be realized by any other design or Graphical User Interface (GUI) element like an image, icon, clickable text or area, or the like. In case of Lotus Notes it is a button hotspot richtext element.

When content is off-loaded by CSLD, it is assigned a unique identifier (ID) 304. In the present example, this ID 304 is stored in the document 300 that contained the off-loaded content. As shown in Fig. 3, the labelled button 301, in the case of CSLD, invokes LotusScript code 302 that issues a retrieve request 303 to CSLD. The retrieve request 303 contains the ID 304 of the content to retrieve and the target document to restore the content to.

It is noted hereby that the code executed by pressing the button depends on the underlying document processing system. In case of Microsoft Exchange, Visual Basic could be invoked. Other possible solution can be Java, JavaScript, or any programming

language which enables to invoke executable code from within a
document.

C L A I M S

1. A method for handling off-load and retrieval of document
    content in a document processing system, comprising the
    steps of:

    detaching content from a document;

    transferring the detached content to the remote repository;

    replacing the transferred content by a placeholder text
    message, that the content has been off-loaded, and a
    labelled retrieve button behind which is executable code
    that enables to retrieve the content back from the
    repository.

2. Method according to claim 1, wherein the text message is
    included in the document.

3. Method according to claim 1 or 2, wherein the labelled
    button is presented with the graphical interface of a
    document processing application.

4. Method according to claim 1 or 2, wherein the labelled
    button is inserted in the document.

5. Method according to any of the preceding claims, wherein
    removing the placeholder text message and the labelled
    button when a previously off-loaded content is restored
    from the remote repository.

6. A system for handling off-load and retrieval of document
    content in a document processing system, comprising:

    means for detaching content from a document;

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means for transferring the detached content to the remote repository;

means for replacing the transferred content by a placeholder text message, that the content has been off-loaded, and a labelled retrieve button behind which is executable code that enables to retrieve the content back from the repository.

7. System according to claim 6, comprising a document processing application having a graphical interface presenting the labelled button behind which is executable code that enables to retrieve the content back from the repository.

8. System according to claim 6 or 7, comprising means for inserting the labelled button in the document.

9. System according to any of claims 6 to 8, comprising means for removing the placeholder text message and the labelled button when previously off-loaded content is retrieved from the remote repository.

10. A data processing program for execution in a data processing system comprising software code portions for performing a method according to any of claims 1 to 5 when said program is run on said computer.

11. A computer program product stored on a computer usable medium, comprising computer readable program means for causing a computer to perform a method according to any of claims 1 to 5 when said program is run on said computer.
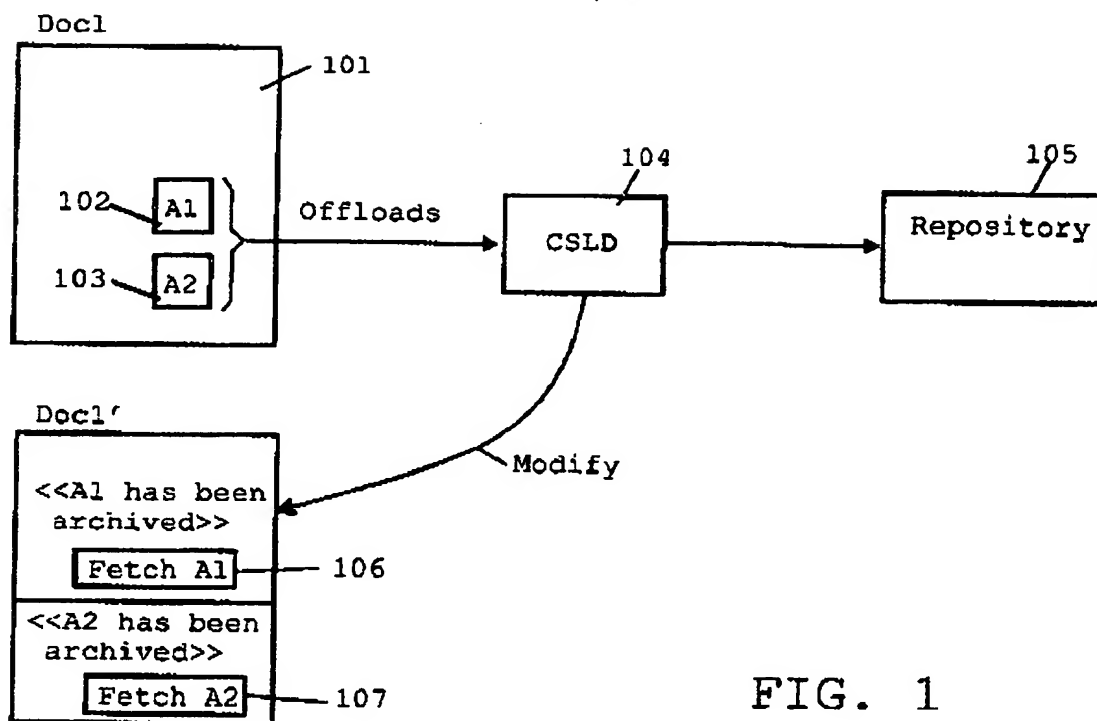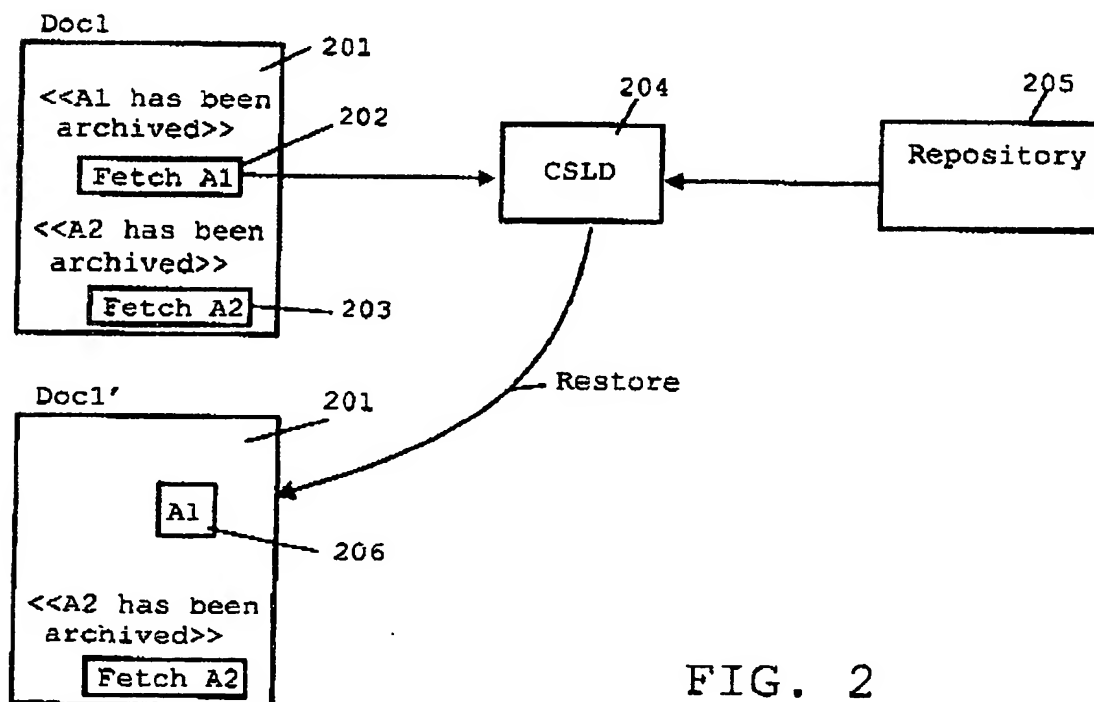
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FIG. 1

FIG. 2

```
          300
 Doc
              301
 ┌─────────────────┐      Click              302
 │  ┌───────────┐  │      invokes      ┌──────────┐   Creates
 │  │ Retrieve  │  │ ─────────────────▶│   Code   │ ──────────▶
 │  │ button    │  │                   └──────────┘
 │  └───────────┘  │
 │                 │
 │─────────────────│                   Lotus Script
 │       ID        │                   Formula Language
 └─────────────────┘                   Visual Script
                                       Visual Basic
                                       Java
                                       Java Script
                                       Native Code
```
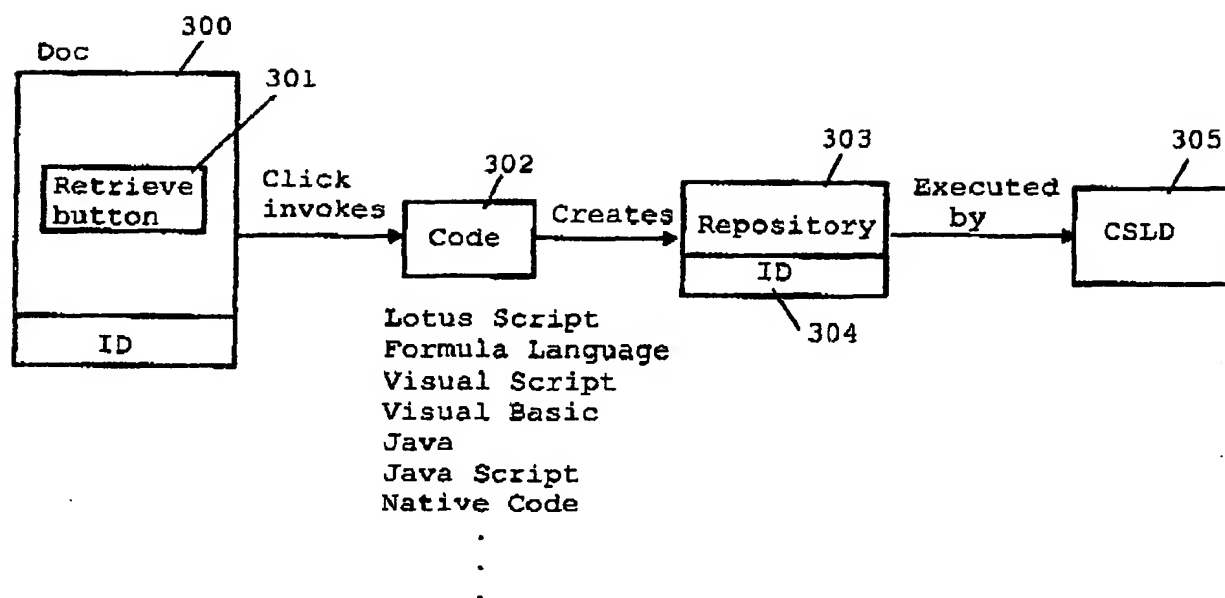
FIG. 3

A B S T R A C T

Disclosed are a method and system for handling off-load and retrieve of document content in a document processing system like Lotus Notes or Microsoft Exchange. Content is detached and off-loaded to a repository. The off-loaded content is replaced by a text message that the content has been off-loaded and a labelled retrieve button. Behind the button is code to retrieve the content back from the repository. When the content has been restored, the text message and the retrieve button are removed. Since the whole code is kept behind the button, there is no need to modify the document processing application. That means, an existing application built on top of a document processing system can be enabled for off-loading with a few administrative steps.
(Fig. 1)